

THE LEISURE HOUR.

A FAMILY JOURNAL OF INSTRUCTION AND RECREATION.

"BEHOLD IN THESE WHAT LEISURE HOURS DEMAND,—AMUSEMENT AND TRUE KNOWLEDGE HAND IN HAND."—*Cooper.*



CONFESSIONS AND ADVICES.

WITHOUT INTENDING IT;

OR, JOHN TINCROFT, BACHELOR AND BENEDICT.

BY G. E. SARGENT, AUTHOR OF "THE CITY ARAB," ETC.

CHAPTER LVI.—SARAH'S CONFESSION.

In her father's absence the young Helen was passing away the time pleasantly enough at Tincroft House; the only drawback she experienced was her anxiety on account of his health, and this was partly modified

and allayed by the encouraging hopes that had been held out to her by her very kind host and hostess.

There were times, indeed, when the memory of her recent loss cast an additional shade over her young life at this time; but it was not an entirely dark shade; for dearly as she had loved, and still loved her mother, the cloud had a silver lining—there was hope, nay, even certainty and glory behind it. Her darling, departed mother was "not lost"—no, not lost, only "gone before."

"I don't know how those who have no hope sorrow when they mourn for the dead," said Helen one day to her friend Mrs. Tincroft; "but I know what a blessed thing it is to feel sure that those who 'sleep in Jesus' are safe and happy; and we have only to be followers of them to meet with them again—in another and better world, dear."

The two ladies were in Helen's pretty room when the serious and confidential talk occurred of which this formed a part. The room was quite fit to be called a lady's bower now; for, by Sarah's undiminished attentions, with an occasional unloosing of John's purse-strings, all manner of pretty feminine ornaments—useful and useless—had found their way into it. As I have said, it was a pleasant room, with a southern aspect, and by day the sun shone into it cheerily, sufficiently screened by the Venetian verandah without, while the pretty flower-garden below had begun to put on a very lovely aspect, with promise of other and more gorgeous hues as the summer advanced.

I do not know what led Sarah and Helen to the strain of conversation just noted. It might be the revival of vegetation after the winter sleep of nature; or perhaps Helen's reminiscences had wandered back to the far-off land where her mother lay buried. But I know that her simple observation was to be like the little mustard seed, "the smallest of all seeds," which when cast into the ground grows, and "when it is grown is the greatest among herbs."

And I may remark that Sarah and Helen, notwithstanding the difference in their several ages, were extremely well suited to each other in pleasant companionship. At first, strange as it may seem, the woman of forty had felt as though she must stand a little in awe of the girl of fifteen; but she soon discovered that this fear was groundless. In this respect Helen's unacquaintance with what are called the accomplishments of modern education was an advantage to her; for she could not, even accidentally and unintentionally, place herself, or seem to be placed, in this respect, on higher ground than her hostess. And then her charming simplicity, combined with natural good breeding, was perfectly enrapturing to Mrs. Tincroft, who, I am afraid, had not met with much of either of these desirable commodities in the few female acquaintances she had ever known or made.

On the other hand, Helen was equally pleased with Sarah. It is no reflection on the present condition of society in Australian towns, to say that a good many years ago there was little in the female portion of it, any more than in the male, to give an idea of high polish. Perhaps what was missing in this kind of varnish was gained in sincerity. But of this I am not at all sure; and let this be as it may, the young Helen had had so little experience of anything above the rough and homely manners of life in the bush, that she was unconscious of the little defects in her hostess, which I have rather hinted at than described. All this would have gone for but little, however, if the overflowings of Sarah's kindly maternal, or otherwise better, instincts had not positively overwhelmed the motherless girl with a sense of grateful obligation. No wonder, therefore, that the two were, almost from the first, mutually pleased with each other, and that before long strong affection sprang up between them.

What added to this hidden sympathy between the matron and the maiden was the fact that both of

them were nice quiet listeners. For instance, Mrs. Tincroft could sit for hours—if Helen had chosen to have all the talk to herself for so long—hearing of the child-woman's life in the bush, and of the strange adventures connected with bush life in general. And especially poor dear Sarah was never tired of being told, again and again, of that passage of arms (traditionally as far as the narratress was concerned) in which her father came to the rescue of her mother, and which led to their after acquaintance. It was with thrilling interest—if such a hackneyed expression may be used here, but in this case, it being an appropriate expression, it may, I hope, be used—it was with thrilling interest, then, that Sarah listened, with all her ears, as we sometimes say, to the account given by Helen of her mother's bravery and presence of mind.

"I never could have done such a thing as that—never," said she, half laughing and half crying, when she first heard the story. "To think of firing off a pistol—and at a man too! Oh, tell it me again, dear."

So, as I have said, Sarah heard the story over and over again, much as I have told it, and about poor Styles; and then her own father came in for a full share of eulogy, of course. And here again Sarah's feelings almost overpowered her, as she cried out,—

"I am prouder of my cousin than ever I was—dear Walter! And I am so glad—oh, so glad that he found such a dear precious wife as your mother was to him, darling Helen. And, oh, if you could but know how I do love you!"

And then came mutual embracings, and a little tear-shedding, before they could settle down quietly again.

I have briefly described what happened at one particular time. But the same feelings were stirred, and almost to the same excess, whenever the story was retold. And I think it requires a subtler psychologist than the present writer to analyse the state of Sarah's mind at those times.

Helen's talk was often of her mother, of course. And here her heart went with all she said when she described her home piety, her loving disposition, her gentle manners, and the general happiness she diffused around her. It might be on one of these occasions that the weeping child gave utterance to her faith and hope in the gospel, and spoke of the comfort she derived from it.

And so the time passed away pleasantly, as I have said, during the absence of the master of Tincroft House and his friend Walter—the more so that the two ladies received letters, by every other day's post, from the absentees, giving tolerably good accounts of themselves. They were not alarmed, nor greatly concerned, therefore, when the proposed few days of absence were extended to considerably more than a month. Of course, in all this time, Helen's bower did not monopolise all the attention of either herself or her hostess. The commonplaces of everyday life had to receive their share of attention, and, to the extreme delight of Sarah, she found an able coadjutor (or trix) in the young Helen. Wonderful was the maiden's skill in concocting rich soups and stews, though (to Jane's horror) she laughingly regretted that the best possible foundation for these dishes, namely, a kangaroo's tail, could not be obtained in England, for love or money, she supposed.

And then the two loving companions took many a quiet walk into the country around Tincroft House,

which was now putting on its early summer beauty. To Helen this was all new; for nothing can be much more distinctly different than the appearances of nature in the two hemispheres. And the enthusiastic delight of the young Australian in her first acquaintance with English country scenery was so contagious, that I question if Sarah had ever before understood or appreciated how much beauty can be discovered in a blade of grass, a wayside flower, or a budding twig of hazel.

On one of these pleasant excursions, in an outburst of confidence, Sarah broke the ice of reserve under which was concealed one of the few secrets which she had kept back from Helen. It cost her some confusion of face, perhaps, if not of mind, to make the confession, which, indeed, sprang out of an innocent question put by Helen.

"Did you and my father know much of one another before he left England?" the simple-hearted girl asked, as she and Mrs. Tincroft sat under the fresh green foliage of a wide-spreading beech-tree, which, like themselves, was rejoicing in the midday sunshine.

"Yes, my dear; we were cousins, you know, then, just as we are now. And we lived near one another, as I have told you. Didn't he ever say anything about—about old times and—and me, to your mother, do you think?"

"Not that I ever heard of, dear; only about your being his cousin. But he didn't often talk about England, I think; for I remember my mother telling me, not so very long ago—for it was just before my little baby brother was born—that she knew very little about father's relations."

"Ah! I dare say he was so happy then, dear Helen, that he did not care to remember that he hadn't always been happy. And, dear me! I can't think how it ever turned out that he could ever have thought of coming back, and of living in the same house and home with his naughty cousin."

"What do you mean, dear? You are not sorry we came back, and are living with you and Mr. Tincroft, are you?" asked Helen, in some consternation.

"Oh no, no; I am so glad, so very glad. It is so good of him, and of you too, my dear. I never was so happy in all my life as I am now," said Sarah. And then there was a renewal of embracing, and more kisses, and a few tears, all of which, though very pleasant to the young girl, at least as far as the embraces and kisses went, slightly puzzled her; and the tears—what did they mean? And what did her dear friend mean by calling herself her father's "naughty cousin"?

"I made your father very unhappy once," continued Sarah, presently, in a whisper, when they had settled themselves down again quietly on the grassy bank under the beech-tree. "It was I that drove him away from his home, I am afraid, dear Helen."

"Dear! dear! So good and kind as you are! How could you?"

"I am afraid I used him badly, my dear, without intending it; but I was young and thoughtless, and liked to have my games, as silly children do. You know, or you don't know, but I may tell you now, we were engaged to be married, my cousin Walter and I, and should have been, no doubt, only I was so foolish as to make-believe that I was pleased to have another—another lover coming after me. I did not think what I was doing, and I didn't mean

anything wrong, dear; and perhaps that's why it all turned out for the best, as it did. For my cousin went away, after treating me as I deserved, and we learned to forget one another, and then I got married to that other whom I had made game of, and who was too good for such a silly thing as I was, and he is my dear John Tincroft now, and I love him so much; he is so good, and I never knew how much he deserved to be loved till it came to me by degrees; and I do love him, my dear.

"And then, you know, dear, when my cousin went abroad, and got over his unhappiness because of the way I had used him, he found out, I haven't any doubt, that he had had a happy escape from such a bad bargain as I should have been to him; and he got a better wife than ever I should have made him; and I don't wonder he never cared to say anything about what had gone before. All I wonder is that he could ever bear the thought or sight of me. But it must be all because of his goodness and John's. And I am so glad it has come round so, and we can look upon one another as cousins again; and with you, darling, to make us all so happy! And when Walter—my cousin Walter and your father—gets better, and finds a home for himself—which I am sure he needn't think of so long as there's Tincroft House—but whatever is to come next, I hope we shall never be parted, dear. And now I think we had better be going homewards, for we mustn't forget we have got to have our dinner, you know."

To say that Helen listened to this rather tangled string of confessions with extreme wonderment is very mildly stating the confusion into which she was thrown. Perhaps this confusion was betrayed by her looks, for as they walked slowly towards the house, her companion remarked,—

"You don't understand such things now, my darling, but you will come to know more about them some day. And would you mind my giving you a little good advice now?"

Helen would be very glad of it, and would thankfully receive it, she said, looking trustfully into the matron's face.

"It isn't much that I shall say, dear," said Sarah, "so you needn't be afraid of my preaching. It is only this, Helen: if you ever fancy that any person—of course I mean a gentleman, and a young one—loves you, or wants you to love him, or if you believe you do love him, in a certain sort of way, you know, so as that you think he wants you to be his wife, or you seem to feel you would like him to be your husband, don't make fun of it, dear; and don't think it clever to tease him and plague him out of his life almost. For this isn't the way to get love, or to keep it, and nobody knows what harm may be done without intending it. Love-making and marrying are serious things, dear, though young people don't always think so."

Helen promised, of course, that she would bear her friend's advice in mind whenever there should be occasion. But she none the less continued to wonder at all she had heard. If it had been twice as strange and curious as it was, however, it would for the time have been driven out of her mind by a letter which awaited her on the dressing-table in her pretty bower, and which Austin, the postman, had delivered during her absence. It was from her father, announcing that on a certain day near at hand, he and Mr. Tincroft would be reaching home,

and adding the cheering intelligence that he felt stronger and better than when he said good-by to her so many weeks ago.

CHAPTER LVII.—ELIZABETH'S GRIEVANCES.

It was quite true that Walter Wilson's state of health seemed to improve during his prolonged sojourn in his native place. But it was not his home now—(where, indeed, was his home?)—and he was after a short time made to feel, in a certain sort of way, that his visit had been sufficiently extended. I dare say if he had chosen to reveal in full the state of his worldly affairs, he would have been made more welcome than he was to the hospitalities of Low Beech. But to gratify a whim of his own, or for some other reason, he kept this knowledge locked up in his own breast, except so far as he had shared it with his confidential man of business. So, in the end, notwithstanding the hopes he had at first raised at Low Beech, it came to be considered that Walter was come home no better than he went out, or perhaps rather worse than better.

There are other vices in the world besides those that brand all those who practise them with disrepute, and eventually with infamy. Mark Wilson, as we have seen, gave himself up to the love of drink, adding drunkenness to thirst, till he brought himself to poverty, disgrace, ruin, and death. On the other hand, Matthew Wilson, sober, industrious, plodding, highly respectable, and positively fancying that God was pleased with him, and was rewarding him by increasing his property, gave himself up to the love of money, adding penny to penny and pound to pound, till he had the repute of being wealthy, and was lauded accordingly; for "men will praise thee when thou doest well to thyself." But covetousness is no less a vice than intemperance. It is equally detestable in God's sight; and its effects on the human soul are equally debasing. Its effect on Matthew's soul was to destroy, or at least to weaken, natural affection, and to make him calculate, after a while, how much it was costing him to entertain his son, just as he knew, almost to a fraction, how much in money value was consumed, day by day, by each inmate in his house. No doubt he was glad when Walter, whom he had thought long dead, unexpectedly made his appearance; and, for a time, his detestable (I beg pardon, his most respectable) vice of avarice (for he was avaricious as well as covetous) was held in abeyance. But when a full month had elapsed, and the returned son gave no sign of opulence, Matthew's ruling passion regained its sway. Here was Walter come back, most likely poor, in ill-health, and with a daughter for somebody to support. It was all very well for Mr. Tincroft to say what he had said about nobody needing to be troubled on that score, but who was to make Mr. Tincroft keep to his word when it came to the pinch?

The same feelings influenced other members of the family to a degree. Even the poor mother had been so accustomed to scrape together pence that, though Walter was her son, she felt uneasy when she thought of the possibility of having him to keep, nobody knew how long. And the brothers—well, they were pleased enough, no doubt—at least, they said they were—to see Walter again; and they made him welcome, after their fashion, at their several homes. But they knew what money was made of, and what it was made for, as well as most people;

at least, they thought they did, and it would have done no good to try to convince them that they were altogether mistaken. And, by this time, they had come to the conclusion, each in his own mind, that Walter would be after wanting "some of the old man's money to take a farm with, or to set up in business with," and then there would be so much the less for them to share by-and-by. So their welcome at last became less cordial and more perforce.

The only one who did not share in these forebodings was the daughter and sister. Elizabeth had always been fond of her brother Walter: even when she, so many years ago, had so heartily and strenuously set herself to make mischief between him and their cousin Sarah, she honestly believed she was doing it for his good, and was attempting, in the only way she knew how, to undo the mischief which she at first had a hand in, when she believed her uncle Mark to have money, which Sarah would eventually inherit. We have seen how, afterwards, she came to be sorry for the part she had taken in separating the lovers. And now, when she looked at Walter's wan countenance, and watched his tottering steps, love and sorrow welled up from her full heart in a mingled current, the more that she believed, with the rest, in her brother's comparative poverty, and traced it all, or much of it, to herself, in having driven him away from England, where he was getting on so well.

Hitherto Elizabeth had not had much opportunity of conversing with Walter, for at Low Beech every one had his or her share of hard work to perform, which filled up every hour of the day, leaving little time for what would have been called idling. One fine afternoon, however—and it happened to be the same day as that on which Sarah and Helen, three hundred miles away, had their chat under the beech-tree—Walter announced his intention of walking up to High Beech Farm, to take leave of his brother George's wife, and he asked Elizabeth to bear him company, and assist him with her stronger arm.

After some little demur, leave of absence was granted by Mrs. Matthew, and the brother and sister set out together. For some time they walked on in silence; but presently Walter spoke,—

"You don't seem very happy, Elizabeth; I have been trying to get a chat with you alone all the time I have been here, and haven't been able; but I have watched and noticed you. There's something on your mind, I think."

"Why, Walter, what should there be?" said Elizabeth, with assumed lightness of speech; and then she added, more quickly, and with evident feeling, "It does not make one any the happier, Walter, to see you in such a poor way."

"Then I had better not have come to the old place to see you at all, if that makes you sorrowful," said the invalid brother.

"Oh, I don't say so, Walter. Of course, it was a very pleasant surprise when you came in so unexpectedly; but when that feeling went off it gave way, perhaps, to another sort of feeling when we saw you looking so bad, and showing such signs of weakness and illness."

"Do you think so? I have rather fancied now that father and mother, and the rest of them, except yourself, don't seem to mind it much."

"There are different ways of showing such things," Elizabeth remarked; and then she added, "but very likely I have felt more than the others have done."

You and I were always good friends, Walter, till—" and here she stopped short.

"Yes, always good friends, Elizabeth. They were happy times when you and I used to play together in the old barn, and go out gathering primroses and violets in spring, and blackberries in autumn, all alone by ourselves," said Walter, with a sigh.

"They were too happy to last, Walter; but, you know, I never took to either of the others as I did to you, even when we were all children. They were mostly ready to quarrel with me if I didn't let them have their way, and they younger than me. But it was different with you; you were older than me, and you always took my part, and we shared what we either of us had; and if it hadn't been for—oh dear, oh dear!" and here the sister could not restrain herself, but broke into loud, sorrowful lamentations.

"Don't distress yourself, Elizabeth dear. We always were good friends, as you say, and so we are now. And it being so, let us talk to one another as we used to do when we went hand in hand over the fields together, telling our little secrets and troubles."

"Oh, Walter, but we are man and woman now!"

"But brother and sister too; nothing can alter that. And I want you to tell me if there isn't something here at your home (Walter could not bring himself to say *our* home, or my old home)—something at your home that makes you unhappy?"

"Well, come to that, there are a good many things not altogether agreeable," Elizabeth answered, more composedly, and yet with apparent bitterness of feeling; "it is not pleasant to be treated as a child, as I many times am, and at forty years old too, if a day, as you know, Walter."

"Yes, of course you are," said the brother; "but I should have thought you had known how to hold your own too, and would not have allowed any one to put upon you, or treat you as a child, as you say. I think I have noticed a good deal of spirit in you at times, Elizabeth."

"Yes, likely enough in some things. There are some things that none of them, not even father, cares to say to me, nor even to talk about when I am by; and he knows the reason why. But when it comes to work—about the house I mean—and how it is to be done, and who is to do it, I am just nobody to be considered," said the sister. "There isn't a servant-girl in the place slaves as I do, Walter; and that you must have seen."

Walter had seen that his sister worked very hard, was up early in the morning, was the last to go to bed, and seemed to have her hands full of household matters all day long. He said this.

"Well then, isn't that enough to make one go wild with vexation? But that isn't the worst. You heard what mother said to me only yesterday at dinner time?—the servant-girl there to hear it too."

"Well, it was something I did not quite understand, about some Smith or other; but I saw it made you very angry, so that you left the room."

"Yes, I should think so, to be insulted in that way! It was a shame, and that is how they go on with me, as if it was my fault not being married. But it all serves me right, it does!" and then poor Elizabeth made known to her brother the great grievance of her life, adding,—

"And ever since then, whenever I have wanted to buy anything for myself, and have had to get the money out of them, I am sure to be told of it. And father is as bad as mother about it every bit, for he

is getting more stingy than ever, and it is as much as I can do to get a decent Sunday dress or bonnet, as you must have seen how old mine are," continued Elizabeth, ready to cry with vexation.

"Don't distress yourself about that, Elizabeth," said Walter, soothingly; "perhaps that trouble can be remedied easier than you think for. I haven't said much about it, but I happen to have a little money more than I want, and before I go— But, my dear, I am feeling very faint." He said this with difficulty and panting. "I think the walk has been too much for my strength; I must rest somewhere."

It was evident to Elizabeth, now that she turned her eyes on him, that her brother was fearfully exhausted. The walk from Low Beech to High Beech was not a long one, but it was all up hill, and the afternoon sun beat upon them hotly. Plainly, Walter had overtaxed his strength. Fortunately, as it seemed, they were near George's farm now, and there they could rest. Still nearer to them was the garden-gate—that gate which opened into the filbert alley, with the holly arbour at the end of it which Walter had such good cause for remembering, and which he had not yet cared to revisit.

"Let us go into the summer-house before we go indoors," said Walter, painfully; "it will be cool there, and we can have our talk out all by ourselves when I am rested a bit."

And so the garden-gate was passed through, and the brother and sister walked silently up the alley, and Elizabeth took off her shawl and wrapped it carefully round Walter, so that he should not get chilled, she said. And Walter, with unwonted tenderness, took his sister's hand, roughened by hard work, and put it to his lips, and a tear fell upon it in the short moment that he held it there. All this Elizabeth afterwards remembered.

PRIMITIVE MAN.

CONSIDERED WITH REFERENCE TO MODERN THEORIES AS TO HIS ORIGIN.

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I.—EVOLUTION AS APPLIED TO MAN.

OF all created mysteries, the most impenetrable is man. What is he? Whence came he? Whither does he tend? Tradition and revelation have, it is true, their solutions of these mysteries, but there are, and always have been, many who will not take these on trust, but must grope for themselves with the taper of science or philosophy into the dark caverns whence issue the springs of humanity. In former times it was philosophic speculation alone which lent its dim and uncertain light to these bold inquirers; but in our day the new and startling discoveries in physics, chemistry, and biology have flashed up with an unexpected brilliancy, and have at least served to dazzle the eyes and encourage the hopes of the curious, and to lead to explorations more bold and systematic than any previously undertaken. Thus has been born among us, or rather renewed, for it is a very old thing, that evolutionist philosophy, which has been well characterised as the "baldest of all the philosophies which have sprung up in our world," and which solves the question of human origin by the assumption that human nature exists potentially

in mere inorganic matter, and that a chain of spontaneous derivation connects incandescent molecules or star-dust with the world, and with man himself.

This evolutionist doctrine is itself one of the strangest phenomena of humanity. It existed, and most naturally, in the oldest philosophy and poetry, in connection with the crudest and most uncritical attempts of the human mind to grasp the system of nature; but that in our day a system destitute of any shadow of proof, and supported merely by vague analogies and figures of speech, and by the arbitrary and artificial coherence of its own parts, should be accepted as a philosophy, and should find able adherents to string upon its thread of hypotheses our vast and weighty stores of knowledge, is surpassingly strange. It seems to indicate that the accumulated facts of our age have gone altogether beyond its capacity for generalisation; and but for the vigour which one sees everywhere, it might be taken as an indication that the human mind has fallen into a state of senility, and in its dotage mistakes for science the imaginations which were the dreams of its youth.

In many respects these speculations are important and worthy of the attention of thinking men. They seek to revolutionise the religious beliefs of the world, and if accepted would destroy most of the existing theology and philosophy. They indicate tendencies among scientific thinkers, which, though probably temporary, must, before they disappear, descend to lower strata, and reproduce themselves in grosser forms, and with most serious effects on the whole structure of society. With one class of minds they constitute a sort of religion, which so far satisfies the craving for truths higher than those which relate to immediate wants and pleasures. With another and perhaps larger class, they are accepted as affording a welcome deliverance from all scruples of conscience and fears of a hereafter. In the domain of science evolutionism has like tendencies. It reduces the position of man, who becomes a descendant of inferior animals, and a mere term in a series whose end is unknown. It removes from the study of nature the ideas of final cause and purpose; and the evolutionist, instead of regarding the world as a work of consummate plan, skill, and adjustment, approaches nature as he would a chaos of fallen rocks, which may present forms of castles and grotesque profiles of men and animals, but they are all fortuitous and without significance. It obliterates the fine perception of differences from the mind of the naturalist, and resolves all the complicated relations of living things into some simple idea of descent with modification. It thus destroys the possibility of a philosophical classification, reducing all things to a mere series, and leads to a rapid decay in systematic zoology and botany, which is already very manifest among the disciples of Spencer and Darwin in England. The effect of this will be, if it proceeds further, in a great degree to destroy the educational value and popular interest attaching to these sciences, and to throw them down at the feet of a system of debased metaphysics. As redeeming features in all this, are the careful study of varietal forms, and the inquiries as to the limits of species, which have sprung from these discussions, and the harvest of which will be reaped by the true naturalists of the future.

Thus these theories as to the origin of men and animals and plants are full of present significance, and may be studied with profit by all; and in no part of their applications more usefully than in that

which relates to man. Let us then inquire,—1. What is implied in the idea of evolution as applied to man? 2. What is implied in the idea of creation? 3. How these several views accord with what we actually know as the result of scientific investigation? The first of these questions may well occupy the whole of this article, and we shall be able merely to glance at its leading aspects. Before doing so, it may be well to place before us the several alternatives which evolutionists offer, as to the mode in which the honour of an origin from apes or ape-like animals can be granted to us, along with the opposite views as to the independent origin of man which have been maintained either on scientific or scriptural grounds.

All the evolutionist theories of the origin of man depend primarily on the possibility of his having been produced from some of the animals more closely allied to him, by the causes now in operation which lead to varietal forms, or by similar causes which have been in operation; and some attach more and others less weight to certain of these causes, or gratuitously suppose others not actually known. Of such causes of change some are internal and others external to the organism. With respect to the former, one school assumes an innate tendency in every species to change in the course of time.* Another believes in exceptional births, either in the course of ordinary generation or by the mode of parthenogenesis.† Another refers to the known facts of reproductive acceleration or retardation observed in some humble creatures.‡ New forms arising in any of these ways may, it is supposed, be perpetuated and increased and further improved by favouring external circumstances and the effort of the organism to avail itself of these,§ or by the struggle for existence and the survival of the fittest.||

On the other hand, those who believe in the independent origin of man admit the above causes as adequate only to produce mere varieties, liable to return into the original stock. They may either hold that man has appeared as a product of special and miraculous creation, or that he has been created mediately by the operation of forces also concerned in the production of other animals, but the precise nature of which is still unknown to us; or lastly, they may hold what seems to be the view favoured by the book of Genesis, that his bodily form is a product of mediate creation and his spiritual nature a direct emanation from his Creator.

The discussion of all these rival theories would occupy volumes, and to follow them into details would require investigations which have already bewildered many minds of some scientific culture. Further, it is the belief of the writer that this plunging into multitudes of details has been fruitful of error, and that it will be a better course to endeavour to reach the root of the matter by looking at the foundations of the general doctrine of evolution itself, and then contrasting it with its rival.

Taking, then, this broad view of the subject, two great leading alternatives are presented to us. Either man is an independent product of the will of a Higher Intelligence, acting directly or through the laws and materials of his own institution and production, or he has been produced by an un-

* Parsons, Owen.

† Mivart, B. G. Ferris, Ithaca, 1871.

‡ Hyatt and Cope.

§ Lamarck, etc.

|| Darwin, etc.

conscious evolution from lower things. It is true that many evolutionists, either unwilling to offend, or not perceiving the logical consequences of their own hypothesis, endeavour to steer a middle course, and to maintain that the Creator has proceeded by way of evolution. But the bare, hard logic of Spencer, the greatest English authority on evolution, leaves no place for this compromise, and shows that the theory, carried out to its legitimate consequences, excludes the knowledge of a Creator and the possibility of his work. We have therefore to choose between evolution and creation; bearing in mind, however, that there may be a place in nature for evolution, properly limited, as well as for other things, and that the idea of creation by no means excludes law and second causes.

Limiting ourselves, in the first place, to theories of evolution, and to these as explaining the origin of species of living beings, and especially of man, we naturally first inquire as to the basis on which they are founded. Now no one pretends that they rest on facts actually observed, for no one has ever observed the production of even one species. Nor do they even rest, like the deductions of theoretical geology, on the extension into past time of causes of change now seen to be in action. Their probability depends entirely on their capacity to account hypothetically for certain relations of living creatures to each other, and to the world without; and the strongest point of the arguments of their advocates is the accumulation of cases of such relations supposed to be accounted for. Such being the kind of argument with which we have to deal, we may first inquire what we are required to believe as conditions of the action of evolution, and secondly, to what extent it actually does explain the phenomena.

In the first place, as evolutionists, we are required to assume certain forces or materials, or both, with which evolution shall begin. Darwin, in his origin of species, went so far as to assume the existence of a few of the simpler types of animals; but this view, of course, was only a temporary resting-place for his theory. Others assume a primitive protoplasm, or physical basis of life, and arbitrarily assigning to this substance properties now divided between organised and unorganised, and between dead and living matter, find no difficulty in deducing all plants and animals from it. Still, even this cannot have been the ultimate material. It must have been evolved from something. We are thus brought back to certain molecules of star-dust, or certain conflicting forces, which must have had self-existence, and must have potentially included all subsequent creatures. Otherwise, if with Spencer we hold that God is "unknowable," and creation "unthinkable," we are left suspended on nothing over a bottomless void, and must adopt as the initial proposition of our philosophy, that all things were made out of nothing, and by nothing; unless we prefer to doubt whether anything exists, and to push the doctrine of relativity to the unscientific extreme of believing that we can study the relations of things non-existent or unknown. So we must allow the evolutionist some small capital to start with; observing, however, that self-existent matter in a state of endless evolution is something of which we cannot possibly have any definite conception.

Being granted thus much, the evolutionist next proceeds to demand that we shall also believe in the indefinite variability of material things, and shall set

aside all idea that there is any difference in kind between the different substances which we know. They must all be mutually convertible, or at least derivable from some primitive material. It is true that this is contrary to experience. The chemist holds that matter is of different kinds, that one element cannot be converted into another; and he would probably smile if told that, even in the lapse of enormous periods of time, limestone could be evolved out of silica. He may think that this is very different from the idea that a snail can be evolved from an oyster, or a bird from a reptile. But the zoologist will inform him that species of animals are only variable within certain limits, and are not transmutable, in so far as experience and experiment are concerned. They have their allotropic forms, but cannot be changed into one another.

But if we grant this second demand, the evolutionist has a third in store for us. We must also admit that by some inevitable necessity the changes of things must in the main take place in one direction, from the more simple to the more complex, from the lower to the higher. At first sight this seems not only to follow from the previous assumptions, but to accord with observation. Do not all living things rise from a simpler to a more complex state? has not the history of the earth displayed a gradually increasing elevation and complexity? But, on the other hand, the complex organism becoming mature, resolves itself again into the simple germ, and finally is dissolved into its constituent elements. The complex returns into the simple, and what we see is not an evolution, but a revolution. In like manner, in geological time, the tendency seems to be ever to disintegration and decay. This we see everywhere, and find that elevation occurs only by the introduction of new species in a way which is not obvious, and which may rather imply the intervention of a cause from without; so that here also we are required to admit as a general principle what is contrary to experience.

If, however, we grant the evolutionist these postulates, we must next allow him to take the facts of botany and geology out of their ordinary connection, and thread them like a string of beads, as Herbert Spencer has done in his "Biology," on the threefold cord thus fashioned. This done, we next find, as might have been expected, certain gaps or breaks which require to be cunningly filled with artificial material, in order to give an appearance of continuity to the whole.

The first of these gaps which we notice is that between dead and living matter. It is easy to fill this with such a term as protoplasm, which includes matter both dead and living, and so to ignore this distinction; but practically we do not yet know as a possible thing the elevation of matter from that plane in which it is subject merely to physical force, and is unorganised, to that where it becomes organised, and lives, without the agency of a previous living organism. Under that strange hypothesis of the origin of life from meteors, with which Sir William Thomson closed his address at the last meeting of the British Association, there was concealed a cutting sarcasm which the evolutionists felt. It reminded them that the men who evolve all things from physical forces do not yet know how these forces can produce the phenomena of life even in its humblest forms.

A second gap is that which separates vegetable and animal life. These are necessarily the converse of

each other, the one deoxidizes and accumulates, the other oxidizes and expends. Only in reproduction or decay does the plant simulate the action of the animal, and the animal never in its simplest forms assumes the functions of the plant. Those obscure cases in the humbler spheres of animal and vegetable life which have been supposed to show a union of the two kingdoms, disappear on investigation. This gap can, I believe, be filled up only by an appeal to our ignorance. There may be, or may have been, some simple creature unknown to us, on the extreme verge of the plant kingdom, that was capable of passing the limit and becoming an animal. But no proof of this exists.

A third is that between any species of animal or plant and any other species. It was this gap, and this only, which Darwin undertook to fill up by his great work on the origin of species, but, notwithstanding the immense amount of material thus expended, it yawns as wide as ever, since it must be admitted that no case has been ascertained in which an individual of one species has transgressed the limits between it and other species. However extensive the varieties produced by artificial breeding, the essential characters of the species remain, and even its minor characters may be reproduced, while the barriers established in nature between species by the laws of their reproduction, seem to be absolute.

With regard to species, however, it must be observed that naturalists are not agreed as to what constitutes a species. Many so-called species are probably races or varieties, and one benefit of these inquiries has been to direct attention to the proper discrimination of species from varieties among animals and plants. The loose discrimination of species, and the tendency to multiply names, have done much to promote evolutionist views; but the researches of the evolutionists themselves have shown that we must abandon transmutation of true species as a thing of the present; and if we imagine it to have occurred, must refer it to the past.

Another gap is that between the nature of the animal and the self-conscious, reasoning, moral nature of man. We not only have no proof that any animal can, by any force in itself, or by any merely physical influences from without, rise to such a condition; but the thing is in the highest degree improbable. It is easy to affirm, with the grosser materialists, that thought is a secretion of brain, as bile is of the liver; but a moment's thought shows that no real analogy obtains between the cases. We may vaguely suppose, with Darwin, that the continual exercise of such powers as animals possess, may have developed those of man. But our experience of animals shows that their intelligence differs essentially from that of man, being a closed circle ever returning into itself, while that of man is progressive, inventive, and accumulative, and can no more be correlated with that of the animal than the vital phenomena of the animal with those of the plant. Nor can the gap between the higher religious and moral sentiments of man, and the instinctive affections of the brutes, be filled up with that miserable ape imagined by Lubbock, which, crossed in love, or pining with cold and hunger, conceived, for the first time, in its poor addled pate, "the dread of evil to come," and so became the father of theology. This conception, which Darwin gravely adopts, would be most ludicrous, but for the frightful picture

which it gives of the aspect in which religion appears to the mind of the evolutionist.

The reader will now readily perceive that the simplicity and completeness of the evolutionist theory entirely disappear when we consider the unproved assumptions on which it is based, and its failure to connect with each other some of the most important facts in nature: that, in short, it is not in any true sense a philosophy, but merely an arbitrary arrangement of facts in accordance with a number of unproved hypotheses. Such philosophies, "falsely so called," have existed ever since man began to reason on nature, and this last of them is one of the weakest and most pernicious of the whole. Let the reader take up either of Darwin's great books, or Spencer's "Biology," and merely ask himself as he reads each paragraph, "What is assumed here and what is proved?" and he will find the whole fabric melt away like a vision. He will find, however, one difference between these writers. Darwin always states facts carefully and accurately, and when he comes to a difficulty tries to meet it fairly. Spencer often exaggerates or extenuates with reference to his facts, and uses the arts of the dialectician where argument fails.

THE QUEEN'S BIRTHDAY.

It is officially announced that her Majesty's birthday is to be held this year on the 1st June. Her real birthday is May 24th (1819). The official celebration has been upon so many different days that "the Queen's birthday" may be fairly described as "a movable festival," so far as the public is concerned, whatever it may be in the family circle and the royal household.

The national affection and loyal attachment felt towards Queen Victoria need no proof, and can gain no strength from anniversary celebrations. At the same time, it must be confessed that the popular demonstrations of loyalty are somewhat weakened by the laxity as to the official date of the natal-day festival. The Lord Chamberlain, or whatever high dignitaries they may be who arrange such matters, may be assured that "there is more in a day," as in a name, than at first may appear. Of this we are certain from remembering the universal outburst of loyal enthusiasm which the Fourth of June brought about in the days

"When George the Third was king."

"The King's birthday" was a familiar holiday, as true a holiday as Boxing Day or Christmas Day, and in Scotland, where these days were not kept, the Fourth of June was the holiday of the year. It is mentioned by Chambers, in his "Book of Days," as a curious proof of the intense feeling connected with that day, that in Edinburgh a *Fourth of June Club* continued for many years after the old King's death to meet and dine, and drink to his revered memory. Not to Scottish readers alone, but to all lovers of patriotic and historical records, the following account of the Edinburgh celebration (from Chambers's "Traditions of Edinburgh") will be welcome:—

"From the time of the Restoration, when the magistrates celebrated the 'glorious twenty-ninth of May' upon a public stage at the Cross, down to the year 1810, when the last illness of King George III



THE QUEEN'S BIRTHDAY.

Queen Victoria, born May 24, 1819. God save the Queen!

threw a damp over the spirits of the nation at large, Edinburgh was remarkable for her festive observance of the 'King's birthday.'

"By the boys, in particular, the 'Fourth of June' used to be looked forward to with the most anxious anticipations of delight. Six months before that day, they had begun to save as many of their 'Saturday's halfpence' as could possibly be spared from present necessities; and, for a good many weeks, nothing was thought of but the day, and nothing was done but making preparations for it. Whitewashing and partly-painting stair-fits was one of the principal preparations. A club of boys, belonging perhaps to the same street, or close, or land, would pitch upon a particular stair-fit, or, if that was not to be had, a piece of ordinary dead wall, as much out of the way as possible; and this became, for the time, the object of all their attentions, and their ordinary place of meeting. Here, upon the great day, they were to muster all their arms and ammunition, kindle a fire, and amuse themselves from morning to night, with crackers, serpents, squibs, and certain Lilliputian pieces of ordnance, mounted upon the ends of sticks, and set off with matches or pee-oys.

"For a fortnight immediately before the day, great troops of boys used to go out of town, to the Braid and Pentland hills, and bring home whins for busking the lamp-posts, which were at that period of the year stripped of their lamps,—as well as boughs for the adornment of the 'bower-like' stations which they had adapted for their peculiar amusement. Of course, they were not more regular in these forages than the magistrates were with edicts, forbidding and threatening to punish the same.

"One of the most important preliminaries of the birthday was the decoration with flowers of the statue of King Charles in the Parliament Square. This was always done by young men who had been brought up in Heriot's hospital,—otherwise 'Auld Herioters,'—who were selected for this purpose, on account of the experience they had in dressing the statue of George Heriot with flowers on his birthday, which was always held on the first Monday of June.

"The morning of the birthday was ushered in by firing of the aforesaid pieces of ordnance, to the great annoyance of many a Lawn-market and Luckenbooths merchant, accustomed, time out of mind, to be awaked four hours later by the incipient squall of the saut-wives and fish-wives at eight o'clock. As for the boys, sleep of course had not visited a single juvenile eyelid during the whole night; and it was the same thing whether they lay in bed, or were up and out-of-doors at work. Great part of the morning was spent in kindling the bane-fires, preparing the ammunition, and adorning the public wells with evergreens. The wells thus honoured were the Bow-head, Lawn-market, Cross, and Fountain Wells; and, besides branches of trees, there was always an oil painting hung at the top, or a straw-stuffed figure set up against the bottom. Both around the fires and the wells were great groups of boys, who busied themselves in annoying the passengers with cries of 'Mind the bane-fire!' or 'Mind—' the person, whoever he might be, that was represented by the painting or the effigy. A halfpenny was a valuable acquisition, and of course added to the general stock of the

company, to be expended in the purchase of gunpowder. These elegant exhibitions were the wonder and admiration of many a knot of country-people, some of whom had come from a great distance to witness the 'fun' and the 'frolics' of the King's birthday.

"About seventy years ago, it was customary to fix figures of the sun, the moon, and the globe, upon the top of the Cross-well; and these being pierced with small holes, and communicating by a pipe with the cistern, water was made to play from their faces in a very beautiful manner. This continued from twelve to four, and was sanctioned by the magistrates. It was to this well that the ancient pillory of the city was fixed.

"Towards the afternoon the bane-fires were in a great measure deserted; for by that time the boys had usually collected a good sum, and began to bend their thoughts upon the great business of the evening. A new object of attention now sprung up—namely, the meeting of the magistrates and their friends in the Parliament House, in order to drink the King's health. In the Great Hall, formerly the meeting-place of the Scottish Parliament, tables covered with wines and confectionaries were prepared at the expense of the city; and to this entertainment there were usually invited about two hundred persons, including the most respectable citizens of Edinburgh, besides the noblemen, gentlemen, and the chief military and naval officers who happened to be in the city or its vicinity. About five o'clock, the attention of the mob became concentrated in the Parliament Close. The company then began to assemble in the House; and those arch-enemies of the mob, yeelp the 'Town Rattens,' drew themselves up at the east entry of the square, in order to protect the city's guests as they alighted from their carriages, and to fire a volley at every toast that was drunk within the house. The gentlemen who came to honour the magistrates had often to purchase the goodwill of the mob by throwing money amongst them; otherwise they were sure to be maltreated before getting into the house. Dead cats, cod-heads, and every species of disgusting garbage, were thrown at them, and sometimes unpopular persons were absolutely seized and carried to the box which covered a fire-pipe in the centre of the square, and there 'burghered,' or made free of the city, by being plumped down, stern foremost, upon the ridge of the box three several times, with severity proportioned to the caprice of the inflictors, or determined by the degree of resistance made by the sufferer.

"While the town-guard stood in the square, the mob were seldom remiss in pelting them with the same horrible missiles. Resistance or revenge in such a case would have been vain; and the veterans found it their only resource to throw all the articles of annoyance, as they reached them, into the lobby of the house; thus diminishing, and perhaps altogether exhausting, the ammunition of their persecutors.

"The healths being drunk, the 'rats' were ordered to leave the square, and march down the street to their guard-house. Most of these veterans had no doubt participated in the distresses and hazards of many a march and counter-march; but we question if they were ever engaged in any so harassing and dangerous as this. In fact, the retreat of the 10,000 Greeks, or that of the British troops in the late

Peninsular war, was scarcely so beset with peril and horror as this retreat of the 'rats' from the parliament square to the town-guard-house—a distance of only 100 yards! The uproar was now at its height, and the mob, not content with a distant fire of missiles, might be said to charge bayonets, and attack their foes hand to hand. The ranks of the guard were of course entirely broken, and every individual soldier had to dispute every inch he proceeded, with a thousand determined annoyers. The temper of the worthy veterans was put to dreadful trial by this organised system of molestation, but some warm exclamation was in general the only expression of their wrath. Some years ago, however, one John Dhu, a high-spirited soldierly man, was so exasperated by the provocation of one of his persecutors, that he turned about at the Cross, and hewed him down with one stroke of his Lochaber-axe.

"After the town-guard was fairly housed, the mob was obliged to seek other objects whereupon to vent their ignoble rage; and, accordingly, the High Street, from the Luckenbooths to the Netherbow, becoming now the field of action, every well-dressed or orderly-looking person who happened to intrude upon the hallowed district was sure to be assailed. Squibs and serpents blazed and flew about in all directions.

"After the mob succeeded in chasing every proper object of mischief from the street, they usually fell to and attacked each other in a promiscuous *mêlée*, till, worn out by fatigue, and fully satisfied with 'fun,' they separated perhaps about ten o'clock, after having kept undisputed possession of the town for at least ten hours. The present system of police has suppressed these outrages."

Having referred at the beginning of this article to the variation in date of the Queen's birthday, it ought to be explained that the anniversary of George III fell on the fourth of June only in consequence of the change of style, which in England commenced in the autumn of 1752. An Act of Parliament ordered that the 3rd of September of that year should be reckoned the 14th. The 24th of May had previously been the birthday of Prince George, but as his accession was not till 1759, the birthday festival remained the same for the sixty years during which he reigned. Old people tell us still of the high pitch of loyal enthusiasm exhibited in the jubilee year of 1809. He then entered on the fiftieth year of his reign.

PERSONAL REMINISCENCES OF DR. CHALMERS.

FROM 1834 to 1838 I attended the theological classes of Dr. Chalmers in the University of Edinburgh. During that period I not only had ample opportunities of profiting by his public teaching, but was privileged to see not a little of his private life. The character and achievements of that great man are well and widely known through means of the admirable biography of his distinguished son-in-law, the Rev. Dr. Hanna. But the reminiscences of an old student, who had the privilege of his friendship, may not be unacceptable at this time to the public, and especially to those who are deeply interested in some of those Christian and social problems on which Chalmers threw the light of his genius.

While Dr. Chalmers was one of the professors, the Theological Hall in the Edinburgh University was full of evangelical life, and the scene of many intellectual triumphs. Dr. Welsh shone in the Church History chair, and exercised a beneficial influence upon the students; but Chalmers was the great luminary, and the chief propelling power of a new spiritual movement. Round this most ardent advocate of evangelical doctrine and brilliant expositor of Christian philosophy were gathered great numbers of the noblest youth in Scotland, studying for the Presbyterian ministry. With these were mingled many students from Ireland, England, and distant parts of the world, not all of them connected with Presbyterian churches, but all admirers of Chalmers's genius, and attracted to Edinburgh by his name. I well remember, among the most notable of the Scottish students, Robert M'Cheyne, and his friend Somerville, now of Glasgow; James M'Cosh, now President of Princeton College, United States; the two Bonars, Horatius and Andrew; James Halley, and his dear friend James Hamilton, whose praise is in all the churches; John Anderson and Robert Johnston, the two devoted Madras missionaries; George Smeaton and William Goold, now both of them distinguished theological professors, though in different churches; and last, but not least, William Hewitson, whose name is fragrant in the church of Christ like that of Robert M'Cheyne. I could easily add to this honourable list, but it is long enough to show the excellence and variety of the gifts possessed by the young men who sat at the feet of Chalmers during the period to which I refer.

It is, of course, not my purpose to attempt any estimate of Chalmers as a theologian, as a Christian philanthropist, or as a pulpit orator. Neither do I here venture on any elaborate account or formal analysis of that system of evangelical doctrine which he so eloquently expounded from the professor's chair. My aim rather is to convey to readers of the present day some correct impressions of his spirit as a Christian teacher, and his character as a genial and gifted man. It was impossible to be in his class-room without feeling the influence of the spiritual and intellectual atmosphere that pervaded it, or receiving those philanthropic and Christian impulses which he almost unconsciously communicated. In all his thoughts and language there was an energy peculiarly his own. Through the whole lecture of the day, no matter what the subject, there ran a deep enthusiasm, sometimes subdued, at other times unrestrained, but always felt by his audience. Every one was compelled to recognise in the lecturer a powerful and original thinker giving forcible and eloquent, or quaint and pointed, expression to his profound convictions in regard to the highest and holiest of themes. It is well known that Chalmers did not teach theology in the dry, formal, and didactic manner that had been so common before his time. He did not begin with those high and somewhat abstruse questions which relate to the existence and attributes of God, to the Trinity, the Incarnation, and the origin of Redemption. But he chose to start from the point to which enlightened natural theology can conduct the earnest inquirer after peace and salvation. That point, he contended, was that at which arises a sense of moral helplessness, of guilt unpardoned, and of a want which nothing in man or in the world can remove. But what nature or reason cannot offer, Revelation brings, even a

remedy for the moral and spiritual diseases of the soul; and this remedy, found in the atoning blood and sanctifying Spirit of a crucified but glorified Saviour, the Scottish Professor expatiated on with characteristic power and eloquence. He excelled in defining the boundaries of natural and revealed religion, in showing their points of contact, and pointing out the way in which the latter satisfies the profoundest wants of our nature.

I will merely mention in this place a few characteristic lessons which Dr. Chalmers took special care to inculcate in his junior or senior class. He was a firm believer in the plenary inspiration of the Scriptures, but he deprecated any theory of inspiration, any attempt to explain the *mode* in which the Holy Spirit acted on the minds and guided the thoughts of the sacred writers. The *fact* of inspiration he held to be undoubted; but speculations about the nature or various degrees of it he wisely regarded as useless and mischievous. Scripture proclaims and evinces its own divine inspiration, but it flings no more light on the way in which the Holy Spirit acted on the minds of the men He inspired than it does on the way in which the soul acts upon, or is united to, the body. Then, in regard to the great doctrine of human depravity, he held that in proportion to the depth and fulness of our views of it will be the depth and fulness of our views of the whole evangelical system. In proportion to our acknowledgment of and acquaintance with the virulence of the disease will be, he argued, our appreciation and apprehension of the remedy for it provided in the gospel. The doctrine of human depravity he considered a very good test in judging of a man's knowledge of true evangelical religion, because sound views of that doctrine lay the foundation for the grand truth—"all is of grace, that all may be to the glory of God." Again, though holding and teaching the doctrine of election, and other similar mysteries of the Christian faith, Dr. Chalmers was most careful to urge upon all his students the scriptural duty and supreme necessity of preaching to all classes of men a full, free, unfettered gospel. He could not bear the idea of what he called "a buckram orthodoxy," preventing a minister of the word from freely offering salvation in the Saviour's name to sinners of every description. His views and feelings on this important subject had, I believe, a good effect in helping to soften, in various quarters, some of the harsher features of Scottish evangelism.

This great man was not only profoundly versed in mathematical and physical science, but had studied with signal success moral philosophy and political economy. The doctrines and laws of economic science that bear directly on the social and Christian welfare of the population of our large towns had in his eyes a special value; and these he delighted to inculcate on the future ministers of the gospel congregated in his classroom. Once a week he lectured to his advanced students on his method of preventing, or dealing with, pauperism; and he expatiated with wonderful skill and eloquence on the false principles of ordinary poor-laws, and the grand experiments he had made in Glasgow as a parish minister bent on supporting or helping the poor simply by means of voluntary and wisely-directed Christian beneficence. On this great subject it is now admitted Dr. Chalmers was considerably in advance of his age. His mode of managing pauperism is theoretically the best, and by far the most worthy of a Christian community;

but it makes too great a demand on the energies and practical philanthropy of modern society for its general adoption and undoubted success. Pauperism, as he always prophesied, will certainly become one of the greatest dangers of the State; and perhaps the time is not far off when public men, moral reformers of all kinds, and enlightened Christians of all denominations, will be compelled to do greater justice than has yet been done to the sound principles and sagacious plans of the eloquent Scottish philanthropist.

The scene in the class-room on a political economy or poor-law lecture day was usually of a very animated character. The lecturer often abandoned his manuscript to enlarge extemporaneously on some favourite theme, to introduce some apt illustration, or to relate a curious anecdote in that rich vein of humour which seems almost to be an attribute of imaginative genius. Many strangers were usually present, attracted by the fresh and powerful prelections of the philanthropic divine. Scotch ministers, dignitaries of the English Church, and strangers from America, often mingled with the students and shared the prevailing enthusiasm. At times the professor called up one or more of his pupils to answer a series of verbal questions on the subjects of the preceding lectures. I remember once being present when a fine-looking and interesting young man was suddenly called up to be examined, and was highly complimented for his ready and excellent answers. That young man was Robert M'Cheyne, who proved himself as apt a pupil in the Chalmersian school of political economy as he was a diligent student of those higher things which pertain more immediately to the kingdom of Christ.

Dr. Chalmers regularly asked all his students, at least once during the session, to join his family at breakfast. About eight or ten of them were invited at a time, and very often other strangers from England, Ireland, or America were present at the breakfast party. Mrs. Chalmers, or one of her daughters, did the honours of the table, and the doctor himself took special charge of the conversation. He usually had the names and even some of the antecedents of his guests written on a piece of paper that lay near or under his plate; and to this record he had frequent occasion to refer, as his memory was not good for names and such matters. So much did he value the importance of such meetings that he usually had a list of topics for conversation prepared beforehand, and of that list he made dexterous use. His conversational powers were excellent. Humorous anecdotes, striking remarks, suggestive ideas, and instructive reminiscences were poured forth by him with wonderful profusion and delightful frankness. And yet he did not, like Coleridge or Carlyle, monopolise the conversation. On the contrary, he successfully drew out each student in his turn, and seldom failed to ascertain the strong points of his character. In his own house he was one of the most kindly and affable of men, and the influence he exercised on students and visitors by means of his breakfast parties was beneficent in the highest degree. Indeed, Dr. Chalmers's breakfasts were for many years a sort of institution in Edinburgh. All strangers and foreigners of any distinction were glad to participate in the genial hospitalities with which they were connected.

Dr. Chalmers took a special interest in his Irish students, who always formed no inconsiderable por-

tion of his two classes. On St. Patrick's Day, which was his own birthday, he invited them all to dinner, and greatly did he enjoy their national peculiarities. There were always some among them who could sing "St. Patrick's Day in the Morning," and other national songs; and with the vocal performances of such native artists the professor never failed to be highly entertained. He had an evident partiality for the Irish; and certainly with his Irish students generally he had good cause to be satisfied. One of the ablest of them all became his son-in-law, and is now known over the world as his biographer. I have heard him give some amusing specimens of Irish life and manners as these struck him during his visits to the Green Isle; and once he convulsed his class with laughter by reading an application from an Irish gentleman for a family tutor, one of whose qualifications was to be that he could "ride well and follow the hounds"! So far as I could learn, no divinity student, of the Dugald Dalgetty order, offered himself as a candidate for this Irish situation.

I remember well the morning of May 30, 1847, when the news spread over all Edinburgh that Chalmers was no more. He had been found dead in his bed, though the night before he had appeared to be in his usual health. A cloud seemed to have fallen on the noble capital of Scotland; and in every house and public place the sad intelligence was the subject of earnest conversation. Men of all churches and classes allowed that a prince in Israel had fallen, that the greatest of living Scotchmen had disappeared from the ranks of his admiring countrymen. His funeral was by far the grandest and most impressive that had ever been witnessed in Edinburgh, or almost in any other city. I was present in the crowd of mourners that surrounded his grave in that beautiful Grange Cemetery that holds the dust of so many of Scotland's noblest sons. Standing beside the late Dr. James Hamilton, once one of my dearest college friends, I cordially sympathised with those solemn feelings to which he gave expression in his own inimitable way. Since the days of Knox, Scotland has not produced a greater ecclesiastic than Thomas Chalmers. But yet it was not in Church politics or government that Chalmers specially excelled. He was one of the most splendid and powerful of all pulpit orators, an admirable defender and expounder of the Christian faith, a most enlightened patriot and philanthropist. His massive intellect and noble spirit, his high attainments in philosophy and science, his argumentative power and Demosthenic eloquence, were all consecrated to the cause of divine truth and human happiness.

J. D.

A MIDLAND TOUR.

XIV.—BLACK COUNTRY SCENES: IRON WORKS AND IRON WORKERS.

We are now on our way to that good old Saxon town Wolverhampton (ten miles north-west of Birmingham), the chief of our iron towns, the metropolis of the Black Country, and the most populous borough and market-town in Staffordshire. Mines and furnaces, rolling mills, forges and foundries, flame-capped towers, and lofty chimneys vomiting continually thick black smoke,—canals and railways—these are again all around us.

Here may be seen the whole process of Iron-making, from the digging of the ore to the production of "Finished Iron;" and as Iron is the most important of all our manufactures, let us view these operations more closely. First of all (after the digging) is the roasting of the ore. The iron-stone is so hard and so mingled with waste, that it is not fit for smelting till it has been softened and purified. It is therefore broken up and mixed with small coal, a heap is formed and set on fire; by the time—perhaps a month—the coal has burnt out the refuse has gone, and black oxide of iron and clay only remain. The ore is then fit for smelting. Here, in these towers, from forty to sixty feet high—seldom standing alone, but usually in twos or threes—where a mighty combustion is ceaselessly maintained for years together, and which are kept filled with fiercely burning fuel, we see the smelting furnaces into which the roasted iron-stone, and the coal, and the lime required to melt it, are ever and anon hurled in great loads gradually changed into fluid and boiling metal, which, together with its dross, sinks to the bottom, and, when allowed to escape, rushes out there in a white, glowing, crackling, and brilliantly coruscating stream, falls into channels and moulds prepared for it, and forms, as it cools, rough block, or "pig" iron. At the smelting furnaces may be witnessed the wonders of the hot and cold blast; † the former a fiery hurricane driven by a powerful steam-engine through many-coiled tubes lying in furnaces underneath, into the very heart of the glowing metal, roaring like a tempestuous sea or a mighty waterfall, and raising the temperature to a prodigious and immeasurable height, while greatly economising the fuel; ‡ the latter, a stream of unheated air impelled in a similar way into the smelting furnace, and producing a stronger iron in smaller quantity at a much larger cost. Here the pig-iron may be seen taken to the foundry, again melted and moulded, and its carbon and oxygen driven off with cold water, after which it is conveyed to the puddling furnaces, to which, indeed, it is more generally taken direct from the blast furnaces, and where, mid the din and roar of machinery, we may see it (after being broken up again by huge steam hammers) re-melted, stirred in the fire to a paste, lifted out, and dragged to the anvil or squeezer, an instrument with two powerful jaws, which make from fifty to sixty motions a minute, where it is rapidly and heavily hammered (as many as 400 blows a minute can be given by the forge hammer) or mightily and intensely squeezed, while the dross—the phosphorus, the silicon, the aluminum, the potassium—runs down in burning streams, or scatters itself in fiery showers, till the mass is sufficiently pure and solid. It is then turned over to other workmen, who drag it to the rolls, through which it is again and again passed, while red-hot, till converted into

* The name "pig-iron" was given by the workmen; the metal in the main channel they called the "sow," and the bars at right angles thereto they likened to "pigs" sucking the teats of the sow.

† The number of furnaces in blast in South Staffordshire has for some years been small in comparison with the number built, as has already been shown in the several districts.

‡ A ton of iron which has been smelted with cold air will have consumed eight tons one hundred weight of coal; with hot air two tons five hundredweight.

We may here mention Mr. Ferrie's system of iron-smelting, lately introduced at Calderbank, in Scotland. It consists in using a furnace, the top of which terminates in a closed retort: the gases evolved in smelting, instead of passing out into the air, are divided by blast into the shafts, flues, etc., and used as fuel, filling each flue with a glowing flame, and maintaining the enclosing brickwork at a bright red heat; and by causing perfect combustion of the fuel economising both coal and iron, and increasing the product of the latter, while improving its quality, saving also the atmosphere from pollution, and the surrounding lands from desolation.

"puddled bar." Where the Bessemer process has been introduced the production of bar iron—generally so long and tedious an operation—is much hastened; the liquid iron, as it flows from the blast furnace, is received into a huge covered ladle, having a pipe through which the hot blast, being driven, mixes with the carbon and other impurities, and rapidly devours them;* it flows thence into a shallow iron trough, cools and solidifies, is broken up, re-melted, and passed through a puddling furnace into which a number of air pipes are fitted, through which steam and the hot and cold blast are driven upon and among it, thus driving off the remaining impurities; and it is finally passed through the rolls. All sorts of iron and steel (in considerable masses) are made by interrupting the process at different stages. Here also may be seen the "ball" or "re-heating" furnaces, in which the bar iron is piled crossways, and heated to whiteness, and whence it is taken again to the hammer, and then to the rolls, and once more passed repeatedly through these; it is then cut—the "shears" will cut *with ease* iron more than two inches thick—goes through the "mill furnace," receives the exact form and substance wished for, becomes "Finished Iron," is stamped with the brand of the maker, and is ready for the manufacturer of iron goods and the market. Much of it, as we have seen, is worked up in the neighbourhood.

The finished iron produced in South Staffordshire is generally very superior, and much in demand.† It consists chiefly of plates for boilers, engineering, and ship-building; bar iron, for general use, and for chains and cables; nail-rods, tin-plate sheets, hoops, and sheets for roofing and other purposes. Hoops for cotton and wool baling, and coopers' uses, form an important part of South Staffordshire manufacture; and we hear of one manufacturer able to make 1,000 bundles, or 25 tons a-day.

The South Staffordshire iron district is the oldest of any importance in the country, and the national nursery for skilled workmen in iron. It has an old-fashioned aspect to the initiated and observant eye; and is scarcely adapted, perhaps, to meet modern improvements. The oldest smelting furnaces in the land are to be found here, and are comparatively small—the forges Dud Dudley himself used are still employed—so that, as of old, much material is lost, which elsewhere, nowadays, is employed usefully. But old and new furnaces often stand side by side. The largest make from a hundred and eighty to two hundred and fifty tons, or even more, a week; the smallest, from a hundred and thirty to a hundred and fifty. The chief improvements in our iron manufacture within the last hundred years have arisen from the application thereto of Watt's steam-engine (in 1770), the introduction of puddling (in 1783) and of rolling, by Cort (in 1784); the use of the hot blast (in 1830) by Neilson, the invention of the steam-hammer (in 1838) by Nasmyth, the Bessemer process (patented in 1856), and, last of all, Danks' rotary puddling furnace (in 1871-2). The hot blast is now almost universally employed: its temperature differs in different places: often both hot and cold blast are used, and sometimes the cold blast only. There are 170 blast furnaces in the district (of which 110 were in blast in January,

1872), yielding 11,000 or 12,000 tons of pig-iron a week,* and if all the works were employed, from 18,000 to 20,000 tons could probably be turned out. The present production of pig-iron is not nearly enough to supply local wants,† even for the manufacture of finished iron only. Yet in consequence of structural improvements the make has increased fully thirty per cent. during the last seven years. For anchors, chains, and cables alone many thousand tons of best iron ore are annually consumed, and perhaps between two and three thousand persons are employed in working it up. Some 300,000 tons of pig-iron are yearly imported into South Staffordshire. There are 2,100 puddling furnaces—nearly a third of the number in the United Kingdom—and about 300 rolling mills in the Black Country; they probably produce 1,000,000 tons of finished iron yearly; the average number of persons employed in the forges and mills was lately reckoned at 17,000, and the wages paid them at more than a million sterling yearly. In January, 1872, there were 28 blast furnaces in the Wolverhampton district, 14 of which were "in blast." At the same time there were 2,053 puddling furnaces in operation in the Black Country.

The iron-stones of South Staffordshire (which are unstratified) are of the white clay species: they vary in quality, yield from thirty to fifty per cent. of iron, and when melted together in proper proportions produce the finest iron. Each seam yields on an average about 1,300 tons an acre. The iron beds of this district are not now so abundant as formerly, being worked out over considerable areas. All the remaining beds known are being rapidly exhausted; and unless fresh seams are discovered the Black Country ironmasters will soon be entirely dependent on other districts for their ore. The quantity raised here in 1866 was 1,000,000 tons; in 1870 it was but 450,000.‡ "The glory of South Staffordshire," says Mr. Warrington Smyth, "as an independent district is past; but the ironmasters make a gallant fight of it in competing with other districts by the introduction from great distances of cheaper iron ores as well as coals, and by strict attention to the quality of their products."

It would seem that about half the iron manufactured here is made from native ores: the brown hematite and clay iron-stones of North Staffordshire, the red hematite of Ulverstone, and the brown siliceous hematite of Northampton, being imported, which has led to the production of a cheaper iron than could be made from the pure native ore. By the admixture of these, to which forge cinder is added to the extent of many thousand tons a year in all South Staffordshire, every variety of pig-iron is produced. The principal firms—those of the "old school"—seem to devote their attention to the manufacture of the first-class iron yielded by the native ore from their own mines. The Bessemer process has equalised the quality of materials produced in different districts, and characteristic differences of quality and price have disappeared. British iron, though the cheapest of all,

* The produce in 1870 (the last year officially reported) was 588,540 tons. † At no distant period, it was estimated that the consumption of iron in Great Britain equalled 25 lbs. only per head, while in America it was 16 lbs., in Belgium 12 lbs., in Prussia 10 lbs., in France 8 lbs., and in Italy, Turkey, and Russia, 6 lbs. In 1851 it was calculated that the consumption in the British Islands equalled 2 cwt. for every man, woman, and child of the whole population, and it is probably now much more.

‡ "Hunt's Mineral Statistics." Associated with the iron we find alumina, magnesia, silica, potash, phosphoric acid, and carbonic acid, etc. § The red hematite is sometimes called bloodstone, and is found at Ulverstone (and also at Whitehaven), in splendid masses of from fifteen to sixty feet thickness.

* It is remarkable that "the purification of cast iron in the Bessemer process is to a very great extent effected by the combustion of the impurities in the raw material."—McCULLOCH.

† "South Staffordshire," says Dr. Percy, in his work on "Metallurgy," "has acquired a high reputation for the so-called fibrous iron."

is generally considered inferior to that of Sweden, Norway, Russia, India, etc., which yield a superior ore, and smelt it with charcoal. Large quantities of our iron, however, are exported to the United States, Germany, Italy, Holland, India, and the colonies. Russia has of late been by far our best customer for railway iron, and if she cultivate the arts of peace is likely to become far more so.

The commercial history of our iron trade is a remarkable and indeed a wonderful one. The produce of iron in England and Wales in 1740 (when it had sunk to the lowest ebb by the exhaustion of our means of making charcoal) was only about 17,350 tons; in 1750 it was 22,000 tons; in 1788, 68,300 tons; and in 1796, 108,793 tons, or including Scotland, 124,879 tons. In 1802 the estimated annual produce of Great Britain was 170,000 tons; in 1806, 250,000; in 1820, 400,000; in 1823, 442,066; in 1828, 702,584; and in 1835, 1,000,000 tons; in 1861 the production of pig-iron in Great Britain was 3,712,390 tons; in 1868, 5,068,000 tons; and in 1870, 6,000,000 tons. And its price has been subject to very great and remarkable fluctuations. In February, 1842, the price of pig-iron was £4 a ton; in August, 1869, it was £2 11s. 6d.; in February, 1872, it was £5 10s. and £6.*

And this mighty industry is one of the wonders of our national life. Ruskin goes so far as to say, "You have at present in England only one art, that is, iron-working. You know thoroughly well," he adds, "how to cast and hammer iron." And this iron itself! What have we in it less than the most truly precious of all metals for its many admirable qualities—for its hardness, so that as steel it will cut all but the most adamant substances in nature—for its ductility, which is barely exceeded by gold, silver, and platinum—for its tenacity, in which, as some one remarks, "no metal equals it, for a one-twelfth of an inch wire will support five hundred-weight without breaking"—for its malleability, by which it may be shaped into endless forms—for its invaluable and almost singular capability of "welding," and its property of being made either easily fusible or intensely hard. "Iron," says Dr. Ure, "accommodates itself to all our wants, our desires, and even our caprices; it is equally serviceable to the arts, the sciences, to agriculture, and to war." And how eloquently does Ruskin speak of it:—"Iron is eminently a ductile and tenacious substance, tenacious above all things, ductile more than most. When you want tenacity, therefore, and involved form, take wrought iron. It is eminently made for that. It is the material given to the sculptor as the companion of marble with a message from the lips of the Earth-mother: 'Here's for you to cut, and here's for you to hammer. Shape this, twist that. What is solid and simple, carve out; what is thin and entangled, beat out. I give you all kinds of forms to be delighted in—fluttering leaves as well as fair bodies; twisted branches as well as open brows. The leaf and the branch you may beat and drag into their imagery. And if you choose rightly and work rightly, what you do shall be safe afterwards. Your slender leaves shall not break off in my tenacious iron, though they may be rusted a little with an iron autumn.'" *Iron!* In its very name there is something English,—sturdy, unpretending, self-reliant.

* The price of bar, and other kinds of iron, is determined once a quarter or (though but rarely) oftener, in advance, by the price of South Staffordshire bar iron, as reported by the Chairman of the Ironmasters' Quarterly Meetings.

And "there is nothing which has exercised greater influence on our national character. Next to the intellect of our people, iron is the instrument of our material civilisation."

The introduction of Danks' Puddling Furnaces (to which we have already alluded) is an event of great importance—is likely, indeed, to effect a revolution in the history of our iron manufacture. Hitherto the process of puddling—that is of keeping the puddling furnaces supplied with fuel and pig-iron, managing the melting metal in the furnace, skilfully stirring and mixing it, and forming it, as it curdles and thickens, into ball for the hammer (a species of labour the most trying and exhausting of any in the Black Country, requiring great muscular exertion, with skilful manipulation, under the most intense heat), has been performed by hand, exposing the worker in a half-stripped state to the fierce flame of the furnaces, into the very heart of which he is obliged frequently to gaze as he follows his work, and entailing on him many after pains and penalties.* At the general meeting of the Iron and Steel Institute at Dudley in August, 1871, Mr. Danks read a description of his invention for doing this work by machinery (then in operation in the United States); and a "Commission" was appointed to proceed to America to investigate its merits and its applicability to British material. The investigation was satisfactory, for together with the saving of human labour and ultimately of human life, an improved quality of iron was produced at a cheaper rate. The furnace is revolving; it is filled by means of a charging-pan, and the charge is withdrawn by a kind of fork which lifts the balled iron into a squeezer (the latter, however, not being an essential part of the apparatus). It is anticipated that a ball of one thousand pounds of iron may be turned out at each heat (the largest now not exceeding five hundred pounds). A royalty not exceeding £2 a ton is to be paid to Mr. Danks on all machine-puddled iron.† May we not hope that the introduction of the puddling machine into the Black Country iron-works may soon be followed by that of the coal-cutting machine into the coal-mines, and of machinery generally more largely into our workshops, to the liberation of thousands of our fellow-creatures from lives of hopeless and heartless drudgery, bringing in their train many forms of disease and death? "We enter," says Simonin, "upon a new phase of the Iron Age which may be styled the 'Steel Period'—a phase which may prove glorious beyond all others in helping to bring about—if not the abolition of war, at any rate that of the brutalising labour of the workman or slave, which will soon be performed by machinery alone."

The workmen in the various branches of the iron manufacture get good wages. They are nearly all paid by the ton, and draw on account till the several

* Among the things not generally known, is this, that Tennyson, the Poet Laureate, numbers among his varied friends a Black Country puddler. The said puddler is no infrequent guest at Farringford, and he is presented by the poet with each of his volumes as they appear. The puddler is a poet too; and his effusions have elicited the Laureate's high praise, but hitherto have not seen the light.—*Birmingham Post*.

† Another invention has just come before us. "An improvement," says the "Mining Magazine" (February, 1872), "is about to be introduced in the manufacture of iron and steel, by the introduction of an entirely new process, patented by Mr. James Webster, of Birmingham. This gentleman has hit upon the idea of using hydrochloric acid in connection with wood naphtha passed through carbon. We are informed on good authority, that ingots of steel manufactured by this process from the commonest scrap iron, have been converted into the finest quality of cast steel in the space of forty minutes, and have stood the greatest test yet known."

jobs are completed. Many serious disputes about wages have taken place between masters and men; these have tended for awhile to raise the pay of the latter, but also to ruin the home trade by enabling the foreigner to undersell us in our own markets, an event which has led to further struggles and reductions. A better day, however, has dawned. A more kindly feeling has grown up of late years between the ironmasters and their workpeople, and has characterised the recent wages movements generally. A conference of iron-masters and iron-workers—after many previous meetings, discussions, and temporary arrangements—was held at Wolverhampton in January, 1872, at which it was shown that a uniform rate of wages (long desired by the iron-workers generally) would neither be possible nor satisfactory; and it was proposed that the standard rate of puddlers' and millmen's wages (by which all others are regulated) should be based on a scale of 10s. per ton when iron bars were selling at £10 per ton—that with every rise and fall in the price of iron the wages should similarly rise or fall two and a half per cent. for puddlers, and five per cent. for millmen—that the books of twelve of the members of the iron trade (the Ironmasters' Association of South Staffordshire and East Worcestershire then represented seventy-three firms, owning from eighty to ninety blast furnaces and between 1,500 and 1,600 puddling furnaces) should be placed half-yearly before a sworn accountant,* and that on the average price at which these twelve firms sold their iron in one half-year should be fixed the wages to be paid in the half-year following. At a subsequent conference it was proposed by the masters that when the selling price of bars was £7 10s. and under, puddlers' wages should be 8s. 6d. per ton; and that they should then rise by a graduated scale to a maximum of 11s. 6d. a ton, when bars were at £11 10s. and upwards; and this scheme, which is thought likely to be more advantageous to the men than the other (which they had proposed), is to come into operation next July. It was also decided to propose a Court of Conciliation or Arbitration (which is most desirable among all classes of workers); and more recently still (in February, 1872) the workmen appointed a Standing Council of Delegates, to whom, on their side, the future settlement of disputes is to be entrusted. The South Staffordshire Ironworkers are now proceeding very satisfactorily under the arrangements of the new sliding-scale; were they to press their present advantages, they might drive the trade to some other quarter. But of course the high rate of wages raises the price of iron, and lets the foreigner into the market; and in March, 1872, the ironmasters of Belgium were delivering iron into South Staffordshire at from 10s. to 25s. a ton below the selling prices of the district, and there seemed to be every probability that the competition would steadily increase. Yet we hope to hold our ground; our ironworkers are themselves almost of iron, and none, we hope, will ever beat them. *Nearly every important improvement in iron making has originated in Great Britain; and improvement will yet be followed by improvement, which will tend to economise our expenditure, and enable us to sell cheaply. Hurrah, then, for British iron! May it carry the day as long as we have hands, arms, and machinery to make, to hammer, and to roll it!*

* One who is bound on oath not to reveal the secrets of one firm to another.

Varieties.

Fiji Islands.—The Fiji group was sighted by Captain Cook, and made known by him to English geography; but the first discovery had been made in the previous century by Tasman, the Dutch navigator. This will correct an accidental error at the beginning of the article on Fiji in the March Number, p. 165.

AUSTRALIAN MEAT.—A correspondent of the "Food Journal" says:—"In the increased attention devoted to this meat, some mistakes seem likely to be made as to the classes for whom it is more particularly applicable. It will probably not be readily accepted by domestic servants, usually very well fed, and at the cost of their employers. It is perhaps doubtful how far it is expedient to adopt it too readily in our workhouses and gaols, etc., as original prejudice might soon be aggravated if it got to be considered as prison food. Those for whom it seems principally adapted, in the first instance, are our hard-worked artisans and labourers generally, who have energetic appetites, and who have to pay for their own food; and the very numerous class of tradesmen, clerks, etc., with incomes varying from £100 to £500 a year, and who have to study real economy in the administration of their households. From these classes the use would gradually extend, upwards and downwards, till we all should become accustomed to consider at each meal whether we were eating meat at 6d. per pound or 1s. 6d., as it costs, after cooking and deducting bone and waste. I am earnest in endeavouring to impress this subject upon public attention, as I believe the extensive use of this article would be in a very high degree blessed in every way. There are millions upon millions of acres in Australia and South America capable of being brought into profitable occupation, or kept in profitable occupation, if only the occupants could be reasonably assured of a fair price for their surplus stock. These people are the very best customers that Great Britain has for her manufactures. They are admirable representatives of the most energetic, enterprising, and adventurous of pioneers. They are opening up fresh and varied sources of wealth. And in pouring into our markets vast supplies of wholesome and nutritious animal food at a very moderate rate, a most excellent effect may be produced upon the health and comfort of great numbers of our own people—now, alas! most sadly under-fed."

ROOKS: ARE THEY FRIENDS OR FOES OF THE FARMER?—It is very easy for naturalists to speak of the ignorant prejudice of farmers, and to instance their hostility to rooks who really befriend them by eating destructive insects. But a shrewd Scottish farmer has a word to say in defence of his order, and the perusal of his letter will persuade our field-naturalists, like Mr. Buckland and Mr. Lord, to temper their criticisms on the farmers:—"In the March Part of the 'Leisure Hour,' in a paper entitled 'The Crow Boy,' mention is made of an examination of the stomachs of rooks by eminent naturalists, which showed that all the year round their food consisted of grubs, etc., injurious to crops; inferring therefrom that rooks are more the friends than foes of the farmer. So far as my observation goes, the rook is at once friend and foe—a friend in so far as it subsists chiefly on animals injurious to plant life; and often a very hurtful foe in the manner in which it gets at these animals. For instance, I have often seen a large extent of young turnips uprooted, and the crop entirely destroyed, by rooks in a single day if left unwatched. The reason is this: there are often small maggots adhering to the roots of the plants, and the rook pulls up the plant to look for them. I have often seen a single rook walking along a row of young turnips, and pulling them up almost as quick as a man could do, giving just a momentary glance at the root brought up and then on to the next, and getting a maggot perhaps on every tenth plant. In the same way I have seen young wheat, when just coming through the soil, pulled up, and the crop more than half thinned out. In some cases I have seen the ground literally white with the delicate blanched stems of uprooted young wheat. It is therefore no wonder that the farmer considers them his foes; for the injury they do is more apparent than the benefit, and their habits must be taken into account as well as the contents of their stomachs in determining their use or abuse. Another fact is, when potatoes are growing in light soil, that is easily dug, the rooks with their strong beaks dig them out in great numbers and pick them to pieces—I believe on the look-out for grubs that inhabit the potato, but have not been able to satisfy myself on this point. In this way one third or more of a crop is sometimes destroyed, causing very great loss.—A SCOTTISH FARMER."